

Docket No. 500.44691X00
Serial No. 10/522,772
Office Action dated July 27, 2006

REMARKS

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I. Introduction

By the present Amendment, claims 1 and 3-8 have been amended. No claims have been added or canceled. Accordingly, claims 1-20 remain pending in the application. Claims 1, 9, and 15 are independent.

II. Office Action Summary

In the Office Action of July 27, 2006, claims 8, 14, and 20 were rejected under 35 USC §112, second paragraph, as being indefinite. Claims 1-5, 9-13, and 15-19 were rejected under 35 USC §102(a) as being anticipated by Japanese Patent No. JP 2002-162623 to Ono et al. ("Ono"). These rejections are respectfully traversed.

The Examiner's indication that claims 6 and 7 would be allowable, if rewritten in independent form to include all the limitations of the base claim and any intervening claims, is noted with appreciation.

III. Rejections under 35 USC §112

Claims 8, 14, and 20 were rejected under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention. Regarding this rejection, the Office Action cites various instances of language that was considered indefinite. In particular, the Office Action indicates that the phrase "or the like" renders the claim indefinite.

By the present Amendment, Applicants have amended claims 8, 14, and 20 to eliminate the phrase "or the like." Accordingly, the indefiniteness of these claims has now been remedied.

Applicants respectfully request withdrawal of this rejection.

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IV. Rejections under 35 USC §102

Claims 1-5, 9-13, and 15-19 were rejected under 35 USC §102(a) as being anticipated by Ono. Regarding the independent claims, the Office Action indicates that Ono discloses a liquid crystal display device having enhanced transmission efficiency, a pixel area surrounded by a plurality of gate lines and data lines which are orthogonal to each other. The Office Action indicates that the pixel electrode is supplied a video signal from the drain signal line via a thin film transistor. The pixel electrode is also described as comprising a transparent conductive layer and conductive members having a light reflection function that are electrically connected to the transparent conductive layer.

By the present Amendment, Applicants have revised independent claim 1, for example, to better clarify the features of the claimed invention that are not shown or suggested by the art of record. As amended, independent claim 1 now defines a transflective type liquid crystal display comprising a liquid crystal layer squeezed between a pair of substrates, a transmission display portion, and a reflection display portion. The display portion comprises:

- a plurality of pixels formed on one of said substrates in an area surrounded by a plurality of gate electrodes and a plurality of source electrodes arranged orthogonal to said gate electrodes;

- a thin-film transistor arranged in each pixel and disposed near an intersection between each gate electrode and each source electrode; and

- a pixel electrode connected to said thin-film transistor,

- wherein said pixel electrode comprises a transparent conductive layer and conductive members having a light reflection function and electrically connected to said transparent conductive layer, and said conductive members are disposed on the surface of said transparent and conductive layer randomly and dispersively.

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According to independent claim 1, the display portion includes a plurality of pixels that are formed on one of the substrates in an area surrounded by a plurality of gate electrodes and a plurality of source electrodes. The gate electrodes and source electrodes are arranged orthogonally to each other. A thin-film transistor is arranged in each pixel and disposed near an intersection between each gate electrode and each source electrode. A pixel electrode is connected to the thin-film transistor. According to independent claim 1, the pixel electrode includes a transparent conductive layer and conductive members having a light reflection function. The conductive members are also electrically connected to the transparent conductive layer. The conductive layers are disposed on the surface of the transparent and conductive layer randomly and dispersively. According to such an arrangement, the claimed invention provides a liquid crystal display that is capable of displaying a bright and high contrast image without interference, regardless of the illumination conditions in an indoor or outdoor environment. See Fig. 3 and corresponding description and page 20, lines 3-9.

The Office Action alleges that Ono discloses the features recited in independent claim 1. Applicant's review of Ono suggests that the LCD device disclosed therein differs from that of the claimed invention. Specifically, Ono appears to provide an LCD device in which the pixel areas are formed in areas surrounded by gate signal lines and drain signal lines. Each pixel area includes a thin-film transistor and a pixel electrode to which an image signal from one of the drain signal lines is supplied through the thin-film transistor. The signal is supplied in response to a scan signal from one of the gate signal lines. The pixel electrode is formed of a reflection conductive film and a transparent conductive film that are electrically connected to each other. The LCD includes a light reuse film that is

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formed under the reflection conductive film through the reflection conductive film and an insulating film. The light reuse film is electrically insulated from the gate signal line and the drain signal line. The reflection conductive film is also disposed such that it surrounds the transparent conductive film. Ono does not appear to disclose a pixel electrode having a transparent conductive layer as set forth in independent claim 1. Specifically, Ono fails to disclose:

wherein said pixel electrode comprises a transparent conductive layer and conductive members having a light reflection function and electrically connected to said transparent conductive layer, and said conductive members are disposed on the surface of said transparent and conductive layer randomly and dispersively.

It is therefore respectfully submitted that independent claim 1 is allowable over the art of record.

Claims 2-8 depend, either directly or indirectly, from independent claim 1, and are therefore believed allowable for at least the reasons set forth above with respect to independent claim 1. In addition, these claims each introduce novel elements that independently render them patentable over the art of record.

Independent claim 9 defines a transflective type liquid crystal display for performing transmission type display and reflection type display in each pixel. Each pixel electrode disposed within a pixel includes a transparent conductive layer and conductive members having a light reflection function that are also electrically connected to the transparent conductive layer. These features do not appear to be disclosed or suggested by the art of record.

It is therefore respectfully submitted that independent claim 9 is allowable over the art of record.

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Claims 10-14 depend from independent claim 9, and are therefore believed allowable for at least the reasons set forth above with respect to independent claim 9. In addition, these claims each introduce novel elements that independently render them patentable over the art of record.

Independent claim 15 defines a transfective type liquid crystal display for performing transmission type display and reflection type display. Each pixel electrode includes a flat plate type transparent conductive layer and conductive members having a light reflection function. These features do not appear to be disclosed by the art of record.

It is therefore respectfully submitted that independent claim 15 is allowable over the art of record.

Claims 16-20 depend from independent claim 15, and are therefore believed allowable for at least the reasons set forth above with respect to independent claim 15. In addition, these claims each introduce novel elements that independently render them patentable over the art of record.

V. Conclusion

For the reasons stated above, it is respectfully submitted that all of the pending claims are now in condition for allowance. Therefore, the issuance of a Notice of Allowance is believed in order, and courteously solicited.

If the Examiner believes that there are any matters which can be resolved by way of either a personal or telephone interview, the Examiner is invited to contact Applicants' undersigned attorney at the number indicated below.

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AUTHORIZATION

Applicants request any shortage or excess in fees in connection with the filing of this paper, including extension of time fees, and for which no other form of payment is offered, be charged or credited to Deposit Account No. 01-2135 (Case: 500.44691X00).

Respectfully submitted,

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Claims 1-5, 9-13, and 15-19 were rejected under 35 USC §102(a) as being anticipated by Ono. Regarding the independent claims, the Office Action indicates that Ono discloses a liquid crystal display device having enhanced transmission efficiency, a pixel area surrounded by a plurality of gate lines and data lines which are orthogonal to each other. The Office Action indicates that the pixel electrode is supplied a video signal from the drain signal line via a thin film transistor. The pixel electrode is also described as comprising a transparent conductive layer and conductive members having a light reflection function that are electrically connected to the transparent conductive layer.

By the present Amendment, Applicants have revised independent claim 1, for example, to better clarify the features of the claimed invention that are not shown or suggested by the art of record. As amended, independent claim 1 now defines a transfective type liquid crystal display comprising a liquid crystal layer squeezed between a pair of substrates, a transmission display portion, and a reflection display portion. The display portion comprises:

- a plurality of pixels formed on one of said substrates in an area surrounded by a plurality of gate electrodes and a plurality of source electrodes arranged orthogonal to said gate electrodes;

- a thin-film transistor arranged in each pixel and disposed near an intersection between each gate electrode and each source electrode; and

- a pixel electrode connected to said thin-film transistor,

- wherein said pixel electrode comprises a transparent conductive layer and conductive members having a light reflection function and electrically connected to said transparent conductive layer, and said conductive members are disposed on the surface of said transparent and conductive layer randomly and dispersively.

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According to independent claim 1, the display portion includes a plurality of pixels that are formed on one of the substrates in an area surrounded by a plurality of gate electrodes and a plurality of source electrodes. The gate electrodes and source electrodes are arranged orthogonally to each other. A thin-film transistor is arranged in each pixel and disposed near an intersection between each gate electrode and each source electrode. A pixel electrode is connected to the thin-film transistor. According to independent claim 1, the pixel electrode includes a transparent conductive layer and conductive members having a light reflection function. The conductive members are also electrically connected to the transparent conductive layer. The conductive layers are disposed on the surface of the transparent and conductive layer randomly and dispersively. According to such an arrangement, the claimed invention provides a liquid crystal display that is capable of displaying a bright and high contrast image without interference, regardless of the illumination conditions in an indoor or outdoor environment. See Fig. 3 and corresponding description and page 20, lines 3-9.

The Office Action alleges that Ono discloses the features recited in independent claim 1. Applicant's review of Ono suggests that the LCD device disclosed therein differs from that of the claimed invention. Specifically, Ono appears to provide an LCD device in which the pixel areas are formed in areas surrounded by gate signal lines and drain signal lines. Each pixel area includes a thin-film transistor and a pixel electrode to which an image signal from one of the drain signal lines is supplied through the thin-film transistor. The signal is supplied in response to a scan signal from one of the gate signal lines. The pixel electrode is formed of a reflection conductive film and a transparent conductive film that are electrically connected to each other. The LCD includes a light reuse film that is

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formed under the reflection conductive film through the reflection conductive film and an insulating film. The light reuse film is electrically insulated from the gate signal line and the drain signal line. The reflection conductive film is also disposed such that it surrounds the transparent conductive film. Ono does not appear to disclose a pixel electrode having a transparent conductive layer as set forth in independent claim 1. Specifically, Ono fails to disclose:

wherein said pixel electrode comprises a transparent conductive layer and conductive members having a light reflection function and electrically connected to said transparent conductive layer, and said conductive members are disposed on the surface of said transparent and conductive layer randomly and dispersively.

It is therefore respectfully submitted that independent claim 1 is allowable over the art of record.

Claims 2-8 depend, either directly or indirectly, from independent claim 1, and are therefore believed allowable for at least the reasons set forth above with respect to independent claim 1. In addition, these claims each introduce novel elements that independently render them patentable over the art of record.

Independent claim 9 defines a transfective type liquid crystal display for performing transmission type display and reflection type display in each pixel. Each pixel electrode disposed within a pixel includes a transparent conductive layer and conductive members having a light reflection function that are also electrically connected to the transparent conductive layer. These features do not appear to be disclosed or suggested by the art of record.

It is therefore respectfully submitted that independent claim 9 is allowable over the art of record.

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Claims 10-14 depend from independent claim 9, and are therefore believed allowable for at least the reasons set forth above with respect to independent claim 9. In addition, these claims each introduce novel elements that independently render them patentable over the art of record.

Independent claim 15 defines a transfective type liquid crystal display for performing transmission type display and reflection type display. Each pixel electrode includes a flat plate type transparent conductive layer and conductive members having a light reflection function. These features do not appear to be disclosed by the art of record.

It is therefore respectfully submitted that independent claim 15 is allowable over the art of record.

Claims 16-20 depend from independent claim 15, and are therefore believed allowable for at least the reasons set forth above with respect to independent claim 15. In addition, these claims each introduce novel elements that independently render them patentable over the art of record.

V. Conclusion

For the reasons stated above, it is respectfully submitted that all of the pending claims are now in condition for allowance. Therefore, the issuance of a Notice of Allowance is believed in order, and courteously solicited.

If the Examiner believes that there are any matters which can be resolved by way of either a personal or telephone interview, the Examiner is invited to contact Applicants' undersigned attorney at the number indicated below.

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Respectfully submitted,

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